

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

1. (Currently Amended) One or more computer-storage media having computer-useable instructions embodied thereon for performing a method for identifying optimal mapping of logical links to the physical topology of a network, the method comprising:

obtaining one or more mapping options for mapping multiple logical links between two or more pairs of network nodes onto physical paths that are at least relatively disjoint;

obtaining a priority order of the network node pairs, the priority order derived from ~~network traffic~~ a predetermined priority of a connection supported by each of carried between the network node pairs, wherein the predetermined priority is based on which geographic locations are linked by the connection; and

correlating the mapping options with the priority order of the network nodes to identify optimal mapping of logical links to the physical topology of a network.

2. (Previously Presented) The media of claim 1, wherein the method further comprises:

obtaining the availability of wavelengths in the network.

3. (Previously Presented) The media of claim 2, further comprising:

correlating the mapping options with the maximum time delay, and the wavelength availability to identify optimal mapping of logical links to the physical topology of a network.

4. (Previously Presented) The media of claim 2, wherein the method further comprises:

obtaining the maximum time delay allowed between each network node pair.

5. (Previously Presented) The media of claim 4, wherein the method further comprises:

obtaining the relative time delay allowed between two or more physical paths.

6. (Cancelled)

7. (Previously Presented) The media of claim 1, wherein the correlation is performed using an integer linear program.

8. (Previously Presented) The media of claim 1, wherein the correlation is performed using a Tabu search methodology.

9. (Previously Presented) The media of claim 1, wherein the correlation is performed to identify the optimal mapping for a large Internet network backbone.

10. (Cancelled)

11. (Currently Amended) A computer system for identifying optimal mapping of logical links onto the physical topology of a network, the system comprising:

a practical constraint module comprising a mapping option sub-module for obtaining mapping options for multiple logical links between two or more pairs of network nodes onto physical paths that are at least relatively disjoint and network node priority sub-module for obtaining a priority order of the network nodes derived from a predetermined priority of a connection supported by each of network traffic carried from the network nodes, wherein the predetermined priority is based on which geographic locations are linked by the connection; and

a correlation module coupled with the practical constraint module for correlating the mapping options with the network node priority order to identify and store optimal mapping of logical links to the physical topology of a network.

12. (Original) The computer system of claim 11, wherein the practical constraint module further comprises:

a wavelength submodule for obtaining wavelength availability in a network.

13. (Original) The computer system of claim 12, wherein the correlation module correlates the mapping options with the network node priority and wavelength availability.

14. (Previously Presented) A system for identifying optimal mapping of logical links to the physical topology of a network, the system comprising:

means for obtaining one or more mapping options for mapping multiple logical links between two or more pairs of network nodes onto physical paths that are at least relatively disjoint;

means for obtaining a priority order of the network nodes utilizing a predetermined priority of a connection supported by each of network traffic carried from the network nodes, wherein the predetermined priority is based on which geographic locations are linked by the connection; and

means for correlating the mapping options with the priority order of the network nodes to identify optimal mapping of logical links to the physical topology of a network.

15. (Original) The system of claim 14, further comprising:

means for obtaining the availability of wavelengths in the network.

16. (Original) The system of claim 15, further comprising:

means for correlating the mapping options with the maximum time delay, the relative time delay and the wavelength availability to identify optimal mapping of logical links to the physical topology of a network.

17. (New) The media of claim 1, wherein the priority order of the network node pairs is derived from a volume of flow of network traffic carried between the network node pairs.

18. (New) The computer system of claim 11, wherein the practical constraint module further comprising obtaining a priority order of the network nodes derived from a volume of flow of the network traffic carried from the network nodes.

19. (New) The system of claim 14, further comprising:

means for obtaining a priority order of the network nodes utilizing a volume of flow of network traffic carried from the network nodes.